

(2/12)

(18/11)

HH Review Set 14A

(Suggested solution / more than 1 method)

Correct method

1a) $40 + x + x = 180$ (Ls sum of Δ)

$2x = 180 - 40$

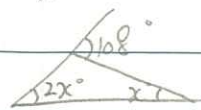
$x = 70$



2b. $2x + x = 108$ (ext. Ls of Δ)

$3x = 108$

$x = 36$



1b) $2t + 2t + t = 180$

(Ls sum of Δ)

$5t = 180$

$t = 36$



$2c \cdot a + 100 = 180$ (Ls on st. line)

$a = 80$

$110 + 90 + 80 + b = 360$

(Ls sum of quadrilateral)

$b = 360 - 280$

$b = 80$

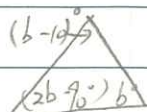


1c) $(b-10) + (b-90) + b = 180$

(Ls sum of Δ)

$4b = 180 + 100$

$b = 70$



$x + b = 180$ (Ls on st. line)

$x = 180 - 80$

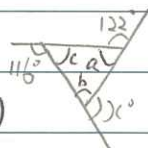
$x = 100$

Method I
2a) $116 + 122 + x = 360$

(Ls sum of ext. Ls)

$x = 360 - 238$

$x = 122$

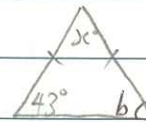


2d $b = 43$ (base Ls, isos. Δ)

$x + 43 + b = 180$ (Ls sum of Δ)

$x = 180 - 43 - 43$

$x = 94$



$\frac{180}{2} = 90$

Method II
or $a + 122 = 180$ (Ls on st. line)

$a = 58$

$b + a = 116$ (ext Ls of Δ)

$b = 116 - 58$

$b = 58$

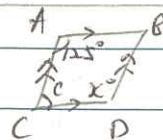
$b + x = 180$ (Ls on st. line)

$x = 180 - 58$

$x = 122$

2e (Method I)

$x = 125$ (opposite Ls of parallelogram)



or (Method II)

$C + 125 = 180$ (Co-int. Ls, $AB \parallel CD$)

$C = 55$

$C + x = 180$ (Co-int. Ls, $AC \parallel BD$)

$x = 180 - 55$

$x = 125$

Method III $a = 180 - 122 = 58$

(Ls on st. line) $C = 180 - 116 = 64$

(Ls sum of Δ) $b = 180 - a - C = 180 - 58 - 64 = 58$

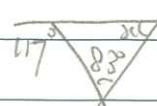
(Ls on st. line) $x = 180 - b = 180 - 58$

$x = 122$

2f) $x + 83 = 117$ (ext. Ls of Δ)

$x = 117 - 83$

$x = 34$

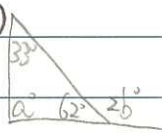


H&H Review Set 14A (continue)

3a) $a + 33 + 62 = 180$ (Ls sum of Δ)

$a = 180 - 95$

$a = 85$



$a + 33 = 2b$ (ext. Ls of Δ)

$2b = 33 + 85$

$2b = 118$

$b = 59$

or $62 + 2b = 180$

(Ls on st. line)

$2b = 180 - 62$

$b = 59$

3c) $a = 3x$ (base Ls, isos Δ)

$4x + 3x + a = 180$ (Ls sum of Δ)

$4x + 3x + 3x = 180$

$10x = 180$

$x = 18$

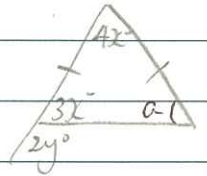
$3x + 2y = 180$ (Ls on st. line)

$2y + 3 \times 18 = 180$

$2y = 180 - 54$

$2y = 126$

$y = 63$



3b) Find x, y, z & t :

$x + 140 = 180$ (Ls on st. line)

$x = 40$

$y = x = 40$ (base Ls, isos Δ)

$z + x + y = 180$ (Ls sum of Δ)

$z = 180 - 40 - 40$

$z = 100$

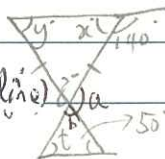
$a + z = 180$ (Ls on st. line)

$a = 180 - 100 = 80$

$t + 50 = a$ (ext Ls of Δ)

$t = 80 - 50$

$t = 30$



(co-int Ls, $AB \parallel CD$)

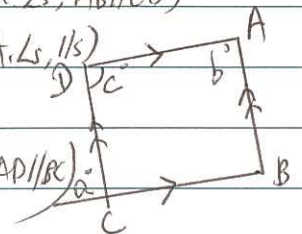
4a) $b + c = 180$ (co-int. Ls, \parallel s)

$c = 180 - b$

$c = a$ (alt. Ls, $AD \parallel BC$)

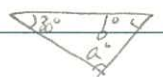
$\therefore a = 180 - b$

or $a + b = 180$



b) $a + b + 30 = 180$ (Ls sum of Δ)

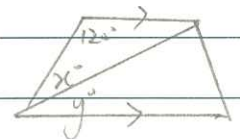
$a + b = 150$



c) $x + y + 120 = 180$

(co-int. Ls, \parallel s)

$x + y = 60$



or

$b = z = 100$ (vert. opp Ls)

$b + t + 50 = 180$ (Ls sum of Δ)

$t = 180 - 50 - 100$

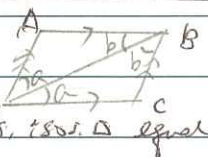
$t = 30$

5a) This is a rhombus.

$\therefore b = a$ (alt. Ls \parallel s) (base Ls, isos Δ equal)

$\therefore AB = AD = DC = BC$

(parallelogram with diagonal bisect the angle)



H&H Review Set 14A (continue)

5b. $b = a$

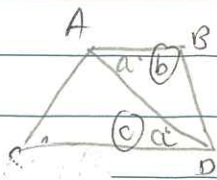
$c = a$

$\therefore b = c$

(alt \angle s are equal)

$\therefore AB \parallel CD$

This is a trapezium
(quadrilateral with a pair of parallel lines)

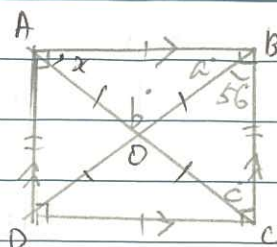


7. a) Find a .

$a + 56 = 90$

(\angle s of rectangle are 90°)

$a = 90 - 56 = 34$



7b) Find b .

$BD = AC$ (diagonals of rectangle)

$BD = DO = AO = DC$

(diagonals of rectangle bisect each other)

$\therefore AO = OB$

$\triangle AOB$

$x = a$ (base \angle s, isos \triangle)

$a + x + b = 180$ (\angle s sum of \triangle)

$b = 180 - a - x$

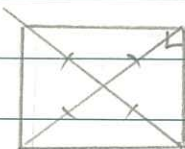
$b = 180 - 34 - 34$

$b = 112$

5c It is a rectangle

\therefore it has a right angle and the

diagonal bisect each other.



6a) Is a square a kite? Yes

\rightarrow A kite is a quadrilateral which has two pairs of adjacent sides equal

\rightarrow A square also has two pairs of adjacent sides equal

6b) Is a parallelogram a trapezium?

Yes

\rightarrow A trapezium is a quadrilateral which has a pair of parallel opposite sides.

\rightarrow A parallelogram is also a quadrilateral has a pair of parallel opposite sides.

7c) Find c

$b = 56 + c$ (ext. \angle s of \triangle)

$c = 112 - 56$

$c = 56$

or $c = 56^\circ$ (base \angle s, isos \triangle)

8. The figure is a parallelogram

$x + 115 = 180$ (co-int. \angle s, 115°)

$x = 65$

$x + y = 180$ (co-int. \angle s, 115°)

$y = 180 - 65$

$y = 115$

H&H review Set 14A (continue)

9a) $6a = (6-2) \times 180$

(\angle s sum of polygon)

$6a = 720$

$a = 120$

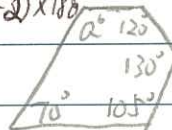


9b) $a + 120 + 130 + 105 + 70 = (5-2) \times 180$

(\angle s sum of polygon)

$a + 425 = 540$

$a = 115$



$$\begin{array}{r} 540 \\ - 425 \\ \hline 115 \end{array}$$

10. Let x be the angle of a regular 12-sided polygon.

$12x = (12-2) \times 180$

(\angle s sum of polygon)

$12x = 1800$

$x = 150^\circ$

$$\begin{array}{r} 1800 \\ 12 \overline{) 1800} \\ \underline{12} \\ 600 \end{array}$$

\therefore The size of the angles of a 12-sided polygon is 150°

11. Let the regular polygon has n sides.

$162n = (n-2) \times 180$

$162n = 180n - 360$

$180n - 162n = 360$

$18n = 360$

$n = 20$

$$\begin{array}{r} 180 \\ 162 \overline{) 180} \\ \underline{162} \\ 18 \end{array}$$

\therefore The polygon has 20 sides.